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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,445	04/22/2005	David Hayes	GJ-264J	1657
7590	09/28/2006		EXAMINER TAKAOKA, DEAN O	
Iandiorio & Teska 260 Bear Hill Road Waltham, MA 02154			ART UNIT 2817	PAPER NUMBER

DATE MAILED: 09/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/532,445	HAYES ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Dean O. Takaoka	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_.  
 2a) This action is **FINAL**.                  2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-10 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_ is/are allowed.  
 6) Claim(s) 1-10 is/are rejected.  
 7) Claim(s) \_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____ .                                     |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/22/05</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|  | 6) <input type="checkbox"/> Other: ____ .                         |

## DETAILED ACTION

### ***Information Disclosure Statement***

The information disclosure statement filed April 22, 2005 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Copies and/or translations of the listed foreign patent documents and non-patent literature documents have not been provided.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 – 5 and 7 – 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Gilbert (US 6,373,349).

Claim 1.

Gilbert shows an electromagnetic switch comprising a guiding medium (slotlines 124, 110, 108) and switch means (116, 118) for controlling propagation within the guiding medium, characterized in that the guiding medium comprises a substantially parallel plate structure (110, 108 or individual cavities 112, 114), and the switch means comprises an array of electromechanical switch elements (MEMS – c3, ln 24)

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positioned to allow selective refection and absorption of an electromagnetic signal in controlled directions (e.g. comb filter selecting selective narrowband frequencies – c3, lns 50-67).

Claim 2.

The guiding medium is a planar guiding medium (slotline).

Claim 3.

The guiding medium is a waveguide (slotline).

Claim 4.

Which the guiding medium is made of a semi-conductor material (silicon wafer – c4, ln 47).

Claim 5.

Which the electromechanical switch elements are activated by displacement of elements of desired conductivity, with the displacement being electrostatic displacement, electric field displacement, magnetic field displacement, or thermal Displacement (Markush group where Gilbert teaches MEMS switches).

Claim 7.

Which the parallel plate structure is a microwave parallel plate structure; and including at least one element of controllable reflectivity that may be used to affect the spatial distribution of the electromagnetic energy by absorption of energy (e.g. impedance – c3, ln 50).

Claim 8.

Which the electromechanical switch elements are controllable through associated logic devices (inherent where the switches are actuated to select frequencies).

Claim 9.

A miniaturized active electromagnetic antenna (where the term “miniaturized” is broad where the size is not defined by the claim and where Gilbert teaches an antenna – c3, lns 40-48) including at least one electromagnetic switch according to claim 1.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gilbert in view of Feng et al. (US 6,143,997).

Gilbert teaches the electromagnetic MEM switch comprising a guiding medium above and switch element but is silent where the elements are in the form of polymers, powders or liquid suspensions where the switch of Gilbert are generic MEM switches.

Feng et al. teaches a well-known art-recognized equivalent beam type MEM switch comprising a well-known polymer (where beam suspensions 32 are polymers – c4, lns 31-35).

It would have been obvious to one of ordinary skill in the art at the time the

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invention was made to have substituted the generic switching device disclosed by Gilbert with the specific switch disclosed by Feng et al. Such a modification would have been mere substitution of well-known art-recognized equivalent MEM switches, thus suggesting the obviousness of the modification.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gilbert in view of Buck et al. (US 5,268,696).

Gilbert teaches the electromagnetic switch comprising a guiding medium above but is silent where the device is an active electromagnetic delay line.

Buck et al. shows a most similar switched slotline device, further comprising an electromagnetic delay line (phase shift).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the switching device disclosed by Gilbert with the delay disclosed by Buck et al. Such a modification would have been obvious where both Gilbert and Buck et al. teach switching slotline devices, where Buck et al. teaches the additional advantage where the reflective phase delay device is used in antenna beam steering (Buck et al. – abstract), where Gilbert teaches similar antenna devices (c3, Ins 41-45) thus suggesting the obviousness of the modification.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dean O. Takaoka whose telephone number is (571) 272-1772. The examiner can normally be reached on 8:30a - 5:00p Mon - Fri.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571) 272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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September 18, 2006